[3270-F1]

OFFICE OF SCIENCE AND TECHNOLOGY POLICY

Request for Information; Digital Assets Research and Development

AGENCY: Office of Science and Technology Policy (OSTP).

ACTION: Notice of Request for Information (RFI).

SUMMARY: The Federal Government is developing a National Digital Assets Research and Development Agenda. The White House Office of Science and Technology Policy (OSTP) — on behalf of the Fast Track Action Committee (FTAC) on Digital Assets Research and Development of the Subcommittee on Networking and Information Technology Research and Development (NITRD) of the National Science and Technology Council, the National Science Foundation, and the NITRD National Coordination Office — requests public comments to help identify priorities for research and development related to digital assets, including various underlying technologies such as blockchain, distributed ledgers, decentralized finance, smart contracts, and related issues such as cybersecurity and privacy (e.g., cryptographic foundations and quantum resistance), programmability, and sustainability as they relate to digital assets.

DATES: Interested individuals and organizations are invited to submit comments on or before 5 p.m. ET on March 3, 2023.

ADDRESSES: Interested individuals and organizations should submit comments electronically to DARD-FTAC-RFI@nitrd.gov and include < RFI Response: Digital Assets R&D Agenda > in the subject line of the email. Due to time constraints, mailed paper submissions will not be accepted, and electronic submissions received after the deadline cannot be ensured to be incorporated or taken into consideration.

Instructions: Response to this RFI is voluntary. Each responding entity (individual or organization) is requested to submit only one response, in English.

Responses may address one or more topics, as desired, from the enumerated list provided in this RFI, noting the corresponding number of the topic(s) to which the response pertains. Submissions must not exceed 10 pages (exclusive of cover page and references) in 11-point or larger font. Responses should include the name of the person(s) or organization(s) filing the comment, as well as the respondent type (e.g., academic institution, advocacy group, professional society, community-based organization, industry, member of the public, government, other). Comments referencing materials that are not widely published should include copies or electronic links of the referenced materials. No business proprietary information, copyrighted information, or personally identifiable information (aside from that requested above) should be submitted in response to this RFI. Comments submitted in response to this notice are subject to the Freedom of Information Act. Comments submitted in response to this RFI may be posted online or otherwise released publicly.

In accordance with Federal Acquisitions Regulations Systems 15.202(3), responses to this notice are not offers and cannot be accepted by the Federal Government to form a binding contract. Additionally, those submitting responses are solely responsible for all expenses associated with response preparation.

FOR FURTHER INFORMATION CONTACT: For additional information, please direct questions to Nik Marda, Anna Brady-Estevez, and James Joshi at DARD-FTAC-RFI@nitrd.gov or 202-459-9688.

SUPPLEMENTARY INFORMATION: Responsible innovation in digital assets could provide significant benefits for the American people. This RFI seeks input to shape a whole-of-government effort on research and development related to digital assets and distributed ledger technology.

Terminology: As defined in Executive Order (EO) 14067, *Ensuring Responsible Development of Digital Assets* and 87 FR 35250 (*Request for Information on Advancing Privacy-Enhancing Technologies*), this RFI uses the following definitions:

- *Central bank digital currency*: The term "central bank digital currency" or "CBDC" refers to a form of digital money or monetary value, denominated in the national unit of account, that is a direct liability of the central bank.
- *Cryptocurrencies*: The term "cryptocurrencies" refers to a digital asset, which may be a medium of exchange, for which generation or ownership records are supported through a distributed ledger technology (DLT) that relies on cryptography, such as a blockchain.
- *Privacy-enhancing technologies*: Privacy-enhancing technologies (PETs) refer to a broad set of technologies that protect privacy, which are within the scope for this RFI. We are particularly interested in privacy-preserving data sharing and analytics technologies, which describes the set of techniques and approaches that enable data sharing and analysis among participating parties while maintaining disassociability and confidentiality. Such technologies include, but are not limited to, secure multiparty computation, homomorphic encryption, zero-knowledge proofs, federated learning, secure enclaves, differential privacy, and synthetic data generation tools.
- *Digital assets*: The term "digital assets" refers to all CBDCs, regardless of the technology used, and to other representations of value, financial assets and instruments, or claims that are used to make payments or investments, or to transmit or exchange funds or the equivalent thereof, that are issued or represented in digital form through the use of DLT. For example, digital assets include cryptocurrencies, stablecoins, and CBDCs. Regardless of the label used, a digital asset may be, among other things, a security, a commodity, a derivative, or

other financial product. Digital assets may be exchanged across digital asset trading platforms, including centralized and decentralized finance platforms, or through peer-to-peer technologies. For the purposes of this RFI, "digital assets" is also inclusive of its underlying technologies (e.g., DLT).

Background: Digital assets are enabling new ways to move value through the online world, and their underlying technology is facilitating change across industries. In the private sector, companies are using DLT to synchronize databases with limited trust, enable new types of recordkeeping, build new infrastructures for managing digital identity, and provide novel financial services to consumers. In the public sector, the United States is exploring whether a CBDC could provide a trustworthy infrastructure to facilitate transactions in a highly digitized world. Across the board, applications of digital assets are benefitting from advances in foundational and translational research, spanning topics from cryptography to the social, behavioral, and economic sciences. However, research and development (R&D) in this space has often been conducted in a fragmented manner, with limited consideration for the broader implications, applications, and downside risks for the underlying innovations. This is particularly concerning because there are many examples of how digital assets introduce risks and exacerbate harms to people, communities, institutions, and the planet.

A more comprehensive R&D approach would provide concrete areas of focus towards achieving a holistic vision of a digital assets ecosystem that embodies democratic values and other key priorities. This approach would help ensure that sometimes-overlooked topics like environmentally-friendly consensus mechanisms and fraud-resistant transaction programmability receive appropriate levels of R&D support. This approach would also help ensure that advances in digital assets can also support technological progress in overlapping and adjacent domains, including the traditional financial services industry.

Recognizing the importance of responsible innovation in digital assets, President Biden signed EO 14067, which outlined the first whole-of-government approach to digital assets. Pursuant to this EO, OSTP published *Technical Evaluation for a U.S. CBDC System*, which highlighted the importance of solving key open questions related to digital assets. OSTP found that there were several important and open questions related to digital assets R&D, which could benefit from increased attention and support. These R&D questions span a wide range of sociotechnical aspects, from technical innovations to social, behavioral, and economic aspects, germane to advancing digital assets while seeking to ensure that people from diverse groups, including underrepresented and marginalized groups, can access and use digital assets in a secure, privacy-preserving, inclusive, and equitable manner.

This report recommended that the U.S. Government develop and periodically update a National Digital Assets R&D Agenda. This recommendation complemented the *Multi-Agency R&D Priorities for the FY 2024 Budget*, which requested that Federal departments and agencies collaborate on critical and emerging technologies, including financial technologies. To help implement this recommendation, OSTP and the National Science Foundation are now co-chairing an interagency FTAC under the NITRD Subcommittee to develop this R&D Agenda. Through this whole-of-government effort, the Biden-Harris Administration will identify R&D priorities for digital assets, and help direct Federal resources and expertise toward advancing those priorities.

Digital assets have generated interest across a range of use cases that could help grow the economy, provide societal benefits, and advance equity and inclusion. There are a number of potential use cases that support these goals, such as the potential for digital assets to help human rights advocates receive financial support for their work under governments that are trying to curtail their activities. However, while much attention has been given to applications within the financial ecosystem, there are also applications that

span a range of other sectors. For example, while some digital assets can consume a lot of energy, their underlying technology may support easier integration and coordination of clean energy resources, such as by providing a better ledger for the authentication, participation, and renumeration of beneficial services from distributed energy resources (e.g., electric vehicles, connected appliances and devices, residential and commercial energy storage systems, solar power systems) on a smart grid. There may be other applications of interest across other sectors, such as healthcare and public health, supply chain management, manufacturing, and internet architecture. The Federal Government should help ensure that the potential of digital assets is realized in sectors where it provides value, while taking steps to ensure that this realization is achieved with the appropriate guardrails needed to ensure responsible innovation in line with American values and a clear understanding and proactive mitigation of the downside risks associated with increasing adoption to digital assets.

A focused R&D effort could provide especially significant benefits for better understanding and designing a particular type of digital asset – the CBDC. While the United States has not made a decision about whether it will pursue a CBDC in the next few years, a focused R&D effort could help illustrate how to design a CBDC system in line with the Biden-Harris Administration's *Policy Objectives for a U.S. CBDC System*. For example, what cryptographic primitives and PETs could best protect the privacy of individuals using the CBDC system? How can social sciences and behavioral economics help identify and remove barriers for usage of the CBDC system by underserved communities? What security features are needed to ensure consumer trust and strong resilience against criminal actors? A focused R&D agenda that engages academia, industry, and civil society can advance policymakers' understanding of how design choices for a CBDC system can impact national policy objectives such as protecting privacy and advancing equity. In turn, these findings could help support the Federal

Reserve, the White House, and the Department of the Treasury in assessing whether the issuance of a U.S. CBDC is in the national interest.

Through this RFI, OSTP seeks responses that could inform the full breadth of Federal R&D priorities related to digital assets, including R&D initiatives that could complement the Federal Reserve's research and experimentation related to CBDCs, consistent with the highest urgency that EO 14067 placed on R&D for a U.S. CBDC system. We also encourage respondents to explain how their R&D suggestions could help advance policy priorities or recommendations outlined in reports pursuant to EO 14067, such as OSTP's report titled *Climate and Energy Implications of Crypto-Assets in the United States*.

Scope: OSTP invites input from any interested stakeholders. In particular, OSTP is interested in input from parties researching, developing, acquiring, using, or governing digital assets; and stakeholders with relevant expertise, either learned or lived. This scope extends to CBDCs, financial use cases, and any of the other use cases and/or value propositions (across sectors) where digital assets might add value or introduce risks of negative impacts.

Information Requested: Respondents may provide information for one or more of the topics below, as desired. Through this RFI, OSTP seeks information on specific R&D opportunities related to the following topics:

1. *Goals, sectors, or applications that could be improved with digital assets and related technologies:* Information about goals, sectors, or applications where digital assets could provide significant value to the public, and examples of where benefits are already being delivered. This includes explanations of the current limitations in how those goals, sectors, and applications are currently advanced with limited use of digital assets and related technologies, and how increased or better use of digital assets could provide a specific advantage over existing approaches in advancing these objectives. Where relevant, respondents are

encouraged to justify how digital assets provide unique value for advancing that goal, sector, or application compared to the use of traditional databases or other technologies (e.g., as outlined in *National Institute of Standards and Technology Internal Report 8202*, Figure 6).

2. *Goals, sectors, or applications where digital assets introduces risks or harms:* Information about goals, sectors, or applications where digital assets might introduce risks or harms, and examples of where risks or harms are already being manifested. This includes explanations of direct or indirect impacts on users of digital assets, communities or sectors in which digital assets might circulate or be integrated into services, and non-users (e.g., communities, environment) that may be exposed to risks or harms of digital assets (e.g., ransomware attacks, higher electricity costs, pollution). Where relevant, respondents are encouraged to justify how digital assets are introducing new risks or harms in advancing the underlying goal, sector, or application compared to the use of traditional databases or other technologies.
3. *Federal research opportunities that could be introduced or modified to support efforts to mitigate risks from digital assets:* This might include information about R&D that helps companies build more environmentally-sustainable digital assets, assist law enforcement in countering illicit financial activity using digital assets, and enable regulators to protect consumers from fraud. This includes opportunities to innovate for equity and privacy with R&D that could help underserved communities harness the benefits of digital assets while being protected from their risks, such as via improvements to digital assets to allow them to better remain accessible, reliable, and secure even when connectivity and end-user device quality are limited.

4. *R&D that should be prioritized for digital assets*: Information about Federal research opportunities that could be introduced or modified to (a) advance the development of digital assets and/or (b) protect communities and U.S. national interests from risks or harms that digital assets might present. This includes topics for technical research, topics for research in the social sciences and across disciplinary boundaries, and opportunities for hardware and software development. This also includes information about emerging areas that could enable new opportunities to leverage digital assets, as well as information about technical limitations of digital assets and the associated business models and governance arrangements they often rely upon. Respondents are encouraged to, where relevant, describe how the discussed R&D topic could be useful in helping a potential U.S. CBDC system align with the *Policy Objectives for a U.S. CBDC System.* Respondents are also encouraged to share how the discussed R&D topic could help advance U.S. competitiveness and leadership in the world.
5. *Opportunities to advance responsible innovation in the broader digital assets ecosystem:* Information about opportunities for the United States to advance responsible innovation in the broader digital assets ecosystem, in areas that are adjacent to R&D. This may include programs that could support increased education and workforce training related to digital assets, standards setting efforts that could help advance democratic values in the use and governance of digital assets, and supply chain opportunities to maintain access to the necessary hardware for emerging digital assets.
6. *Other information that should inform the R&D Agenda:* Information about any other topic, not covered above, that respondents believe is important to inform the development of the National Digital Assets R&D Agenda. This may include ideas for collaborations between the Federal Government and other entities, as well as

proposals that may not yet be feasible with the current state of technology but might become feasible in the next decade.

Dated: January 22, 2023.

Rachel Wallace,

Deputy General Counsel.

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